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## PATENT SPECIFICATION



Application Date: March 20, 1939. No. 8849/39.

523,706

Complete Specification Left: March 1, 1940.

Complete Specification Accepted: July 19, 1940.

### PROVISIONAL SPECIFICATION

#### Improvements in or relating to Display and Advertising Devices

I, HORACE ARTHUR MOORE, a British Subject, of 479, Green Lane, Goodmayes, Essex, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to display and advertising devices of the type (hereinafter referred to as the type described) having a body portion comprising a sheet of transparent material provided with  
10 ornamentation, patterns, letters, legends or the like. This device may be used with or without artificial illumination which, when employed, is preferably arranged to direct light rays edgewise  
15 into the body portion.

The invention has for its main object to provide an improved construction of device of the type described having ornamentation, letters or the like applied  
20 in a novel manner.

According to the invention there is provided a display or advertising device of the type described, whereof the body portion is provided in its rear face with a  
25 plurality of holes or recesses arranged in spaced relation to form the ornamentation, pattern, design, figure, one or more letters, legends or the like.

Preferably, the recesses are circular, and they may be wholly or partly of tapered or conical formation.

The recesses may be of various depth which preferably increases progressively in a direction from one edge of the body  
35 portion towards its opposite edge.

The sides of the holes or recesses are preferably of a light-diffusing nature, e.g. roughened or frosted.

A simple form of display device  
40 according to the invention consists of a rectangular strip of glass-clear transparent material, e.g. regenerated cellulose, or a non-inflammable cellulose derivative, such as cellulose acetate,  
45 or any of the similar materials, such as synthetic resins, which are available at the present day, having polished edges and a row of conically tapered circular recesses made centrally in one side of the  
50 strip. The sides of the recesses are rough so as to be light-diffusing, and the recesses gradually increase in depth from one end of the row to the other. When the strip

is illuminated edgewise at its end having the shallowest recess, and it is viewed by an observer facing the non-recessed side, the recesses have the appearance of luminous projections formed on the non-recessed side of the strip.

When a rectangular sheet of transparent material has a circular row of recesses surrounding a design, e.g. representing a butterfly, also formed by recesses, the recesses of the circular row nearest the edge to be illuminated will be shallower than those more remote from that edge, the depth of which more remote recesses preferably increases successively until it attains a maximum at those recesses nearest the opposite edge. Similarly, some of the recesses forming the design are preferably deeper than others.

A device as set forth above may have a light filter at one or more edges of the body portion, for ensuring that only rays of a predetermined colour or colours shall pass into the body through its edge.

A marginal portion of the body may be of channel section for receiving a light filter.

In some cases, that side face of the body portion which is recessed, may be provided wholly or partly with a dark opaque sheet of material or a darkened background for enhancing the appearance of the device in daylight.

If desired, the said side face may be covered wholly or partly with a reflector or a reflecting background for the same purpose.

One or more marginal portions of the sheet of transparent material may be bent so as to lie out of the general plane of the sheet. It is found that when the unbent flat portion of the sheet is illuminated edgewise, the bent portion is also illuminated. This bent portion may also be provided with holes or recesses.

The invention also provides the combination with a neon lamp, preferably of extended form, of a device as set forth above, arranged with its body portion placed edgewise in relation thereto.

In some cases two devices may be

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situated at opposite sides of the neon lamp of elongated form.

Alternatively, a described device may be suspended from or otherwise mounted in relation to an electric incandescent lamp so as to be illuminated edgewise by the same.

A shop window pelmet may also be constituted by a device as set forth above.

In some cases, two or more sheets, each made as described above, may be placed one in front of another, and one or more of them may be movable, e.g. rotatable in relation to another.

The invention is not restricted to the precise constructional details described above, as the improved display device has wide application. A few examples of its use are the dials of instruments on aero-

planes, motor cars, and elsewhere, direction indicators and displayed matter on transport services, and ornaments for personal wear. Several sheets on dials may be illuminated by one source of light common to them all. Also, in some cases, the recesses may be made in a face of a sheet which slants in relation to the opposite face, in which case the sheet is of tapered cross-section, and the recesses may all be of the same depth.

Moreover, in some cases, glass sheets may be employed.

Dated this 20th day of March, 1939.

BOULT, WADE & TENNANT,  
111/112, Hatton Garden, London, E.C.1,  
Chartered Patent Agents.

## COMPLETE SPECIFICATION

### Improvements in or relating to Display and Advertising Devices

I, HORACE ARTHUR MOORE, a British Subject, of 479, Green Lane, Goodmayes, Essex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to display and advertising devices of the type (hereinafter referred to as the type described) having a body portion comprising a sheet of transparent or translucent material provided with ornamentation, patterns, letters, legends or the like, for use with artificial or daylight illumination arranged to direct light rays edgewise into the body portion.

It has heretofore been proposed to provide an illuminated sign of the type described comprising one or more glass plates bearing an etched design whereof portions were incised to varying depths to refract the light rays with different degrees of intensity.

The invention has for its main object to provide an improved construction of device of the type described having ornamentation, letters or the like applied in a novel manner in order to enhance the appearance of the device when it is illuminated by artificial light.

According to the invention there is provided a display or advertising device of the type described, whereof the sheet forming the body portion is provided in its rear face with a plurality of recesses arranged in spaced relation to form the ornamentation, pattern, design, figure, one or more letters, legends or the like, which device is characterised in that the

recesses are circular and their sides are of a light-diffusing nature, such as roughened or frosted.

The recessed sheet is preferably composed of non-vitreous material, and one or more of its recesses may be wholly or partly of tapered or conical formation. Also, the recesses may be of various depth which increases progressively in a direction from one sheet-edge that is to be illuminated towards an opposite edge.

In other words, the distance between the front face of the recessed sheet and the bottom of its recesses may decrease progressively in a direction from one edge of the sheet towards the opposite edge, and when the recessed sheet is of tapered cross-section the recesses may be of equal depth.

Several embodiments of the invention are diagrammatically illustrated by way of example in the accompanying drawings, wherein:—

Figure 1 is a rear elevation, and

Figure 2 is a vertical section taken on the line 2—2 in Figure 1 showing one form of display device, partly broken away, according to the invention;

Figures 3 and 4 are perspective views showing two modified forms;

Figures 5, 6 and 7 are vertical sections showing other forms;

Figure 8 is a rear elevation, and

Figure 9 is a vertical section taken on the line 9—9 in Figure 8 showing another form;

Figure 10 is a rear elevation, and

Figure 11 is a vertical section taken on the line 11—11 in Figure 10 showing another form;

Figure 12 is a front elevation, and

Figure 13 is a perspective view showing two other forms;

Figure 14 is a vertical section showing a rotary device according to the invention and

Figure 15 is a front elevation showing part of another rotary device according to the invention, and

Figure 16 is a vertical section taken on the line 16—16 in Figure 15.

Like reference characters designate like parts throughout the several views.

Referring first to Figures 1 and 2, a sheet 20 of glass-clear, preferably non-vitreous, transparent material, e.g. regenerated cellulose, or a non-inflammable cellulose derivative such as cellulose acetate, or any of the similar materials, such as synthetic resins, which are available at the present day, with polished edges, constitutes the body portion of a display device, and has a vertical row of circular recesses 22 formed in its rear face. These may be cylindrical, or conical, or, as shown, partly cylindrical and partly tapered or conical. The sides of these recesses are rough so as to be light-diffusing, and the recesses gradually increase in depth from one end of the row to the other. The shallower recesses are situated adjacent to the upper polished edge 24 of the sheet through which light rays, indicated by an arrow 26, enter the sheet from daylight illumination or from a source of artificial light, e.g. an electric lamp, not shown. When the sheet is illuminated edgewise in the dark, and it is viewed by an observer facing the front non-recessed side face 28, the device has a striking appearance and the recesses appear as luminous projections formed on the face 28. In some cases the sheet 20 may consist of coloured translucent material.

Figure 3 shows an ornamental display device comprising a sheet 20 having a circular row 30 of recesses surrounding a design 32 representing a butterfly also formed by recesses. The recesses of the circular row nearest the top edge 24 are shallower than those more remote from that edge, and the depth of all the recesses of the row progressively increases until it attains a maximum at those recesses nearest the lower opposite edge. Similarly, some of the recesses forming the design 32 are preferably deeper than others. The sheet 20 is carried by a metal mount 36, and has at the rear a dark opaque sheet of material 38. Alternatively, the rear face of the sheet may be darkened by a coat of paint or may be provided with a reflecting background,

for enhancing the appearance of the device in daylight.

Figure 4 shows a display device similar to that shown in Figure 3 but having a sheet of coloured translucent material 40 arranged in front of the body portion 20 of the device.

As shown in Figure 5, when the body portion 20 is of tapered cross-section the recesses 42 in its rear face may be of equal depth and so arranged that the distance between the front face 28 and the bottom of the recesses decreases progressively in a direction from the upper edge 24 towards the lower opposite edge.

The marginal portion of the sheet through which the light rays 26 enter may be of channel section, as shown at 44 in Figure 6, for receiving a light filter 46. When such a light filter is provided at one or more edges, it ensures that only rays of a predetermined colour or colours shall pass into the sheet.

One or more marginal portions of the sheet 20 may be bent, as shown at 48 and 50 in Figure 7, so as to lie out of the general plane of the sheet. It is found that light rays 26 entering a bent portion, which if desired may be provided with recesses, serve for illuminating the entire device.

Figures 8 and 9 show a sheet 20 having at 52 the letter L, whereof the down stroke 54 is a vertical recess of elongated form lying in the direction of the light rays 26 and deeper at its lower end than at its upper end, the cross stroke 56 of the letter being formed by a horizontal recess equal in depth throughout its length to the depth of the lower end of the recess 54. The recesses 58 provided are small and circular, and are formed in the bottom of the elongated recesses 54 and 56.

Figures 10 and 11 show a letter T formed by two recesses 60 and 62 similar in shape respectively to the recesses 54 and 56 with a row of small circular recesses 64 surrounding the elongated recesses.

As shown in Figure 12, a shop window pelmet comprising a translucent sheet 20 provided with a row of recesses 22 may be made in a similar manner.

Figure 13 shows a neon or other electric lamp 66 of elongated form having a recessed sheet 20 arranged edgewise in parallel relation thereto and spaced a short distance from it. If desired, more than one sheet 20 may be illuminated artificially by the same lamp, e.g. at opposite sides thereof. In this way the illuminated display effect of a single lamp is greatly increased.

In some cases two or more sheets, each

- made as described above, may be arranged to be movable, e.g. rotatable, one in relation to another. As shown in Figure 14, two circular sheets 68 and 70 are arranged side by side and are provided each with recesses 22 that are deeper as they approach a centre shaft 72, on which the sheet 68 is fixed, and about which the sheet 70 is rotatable.
- 10 Referring to Figures 15 and 16, a sheet 20 forms part of the body portion of an instrument board such as is used on a motor-car or aircraft, and has marked on it a plurality of dials 74 each having a circular aperture in which is rotatable a disc 76 provided with an index 78 formed by a row of recesses. Each disc 76 is carried by a spindle 80 of an instrument 81 and is rotatable within the sheet 20 which may be illuminated edgewise at any convenient situation, e.g. by an electric incandescent lamp 82 arranged at the centre and protected by a cover plate 84.
- 25 It will be appreciated from the above that the invention is applicable to the manufacture of many kinds of display and advertising devices, including direction indicators, ornaments for personal wear, and also for the decoration of furniture, household utilities, stands for various purposes and trade effects. When the display device has a suitable construction, e.g. as shown in Figure 4, it may be suspended from an electric incandescent lamp or its holder so as to be illuminated edgewise by the lamp.
- 35 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—
1. A display or advertising device of the type described, whereof the sheet forming the body portion is provided in its rear face with a plurality of recesses arranged in spaced relation to form the ornamentation, pattern, design, figure, one or more letters, legends or the like, characterised in that the recesses are circular and their sides are of a light-diffusing nature, such as roughened or frosted.
  2. A device according to claim 1, wherein one or more of the recesses are wholly or partly of tapered or conical formation.
  3. A device according to claim 1 or claim 2, wherein the recesses are of various depth which increases progressively in a direction from one sheet-edge that is to be illuminated towards an opposite edge.
  4. A device according to claim 1 or claim 2 wherein the distance between the front face of the recessed sheet and the bottom of the recesses decreases progressively in a direction from one edge of the sheet towards its opposite edge.
  5. A device according to claim 4, wherein the recessed sheet is of tapered cross-section, and the recesses are of equal depth.
  6. A device according to claim 1, wherein one or more recesses of elongated form lie in the direction of the light rays, and are deeper at one end than at the other end which is nearer the source of artificial illumination, and circular recesses of equal or various depth are formed in the bottom of a said elongated recess.
  7. A device according to any of the preceding claims having a light filter at that edge of the recessed sheet through which the light rays enter it, characterised in that the light filter is accommodated in a marginal portion of the sheet of channel section.
  8. A device according to any of the preceding claims, wherein the recessed sheet is composed of non-vitreous material.
  9. A device according to any of the preceding claims, wherein the rear face of the recessed sheet is provided with an opaque background, characterised in that the background is reflecting, for enhancing the appearance of the device in daylight.
  10. A device according to any of the preceding claims, wherein a marginal portion of the recessed sheet, through the edge of which the artificial light enters, is bent so as to lie out of the general plane of the body portion of the device.
  11. A device according to any of the preceding claims 1 to 8 in the form of a shop-window pelmet.
  12. The combination of a plurality of devices according to any of the preceding claims 1 to 8 arranged one rotatable in relation to another.
  13. A combination of devices according to claim 12 wherein the devices are arranged side by side, or one within another.
  14. A display device as shown in Figures 1 and 2 or as modified according to any of the additional Figures of the drawings.

Dated this 1st day of March, 1940.

BOULT, WADE & TENNANT,  
111/112, Hatton Garden, London, E.C.1,  
Chartered Patent Agents.

[This Drawing is a reproduction of the Original on a reduced scale.]

Fig. 1.

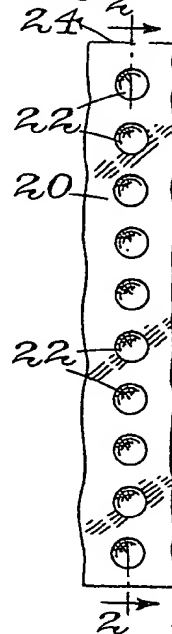


Fig. 2.

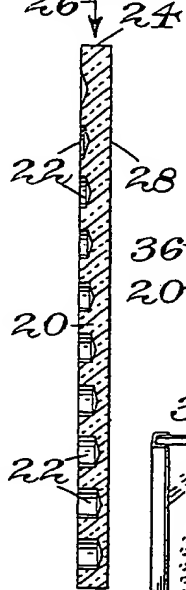


Fig. 4.

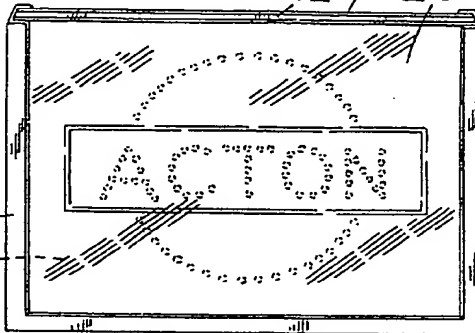


Fig. 3.

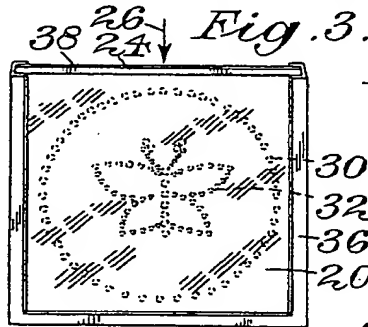


Fig. 5.

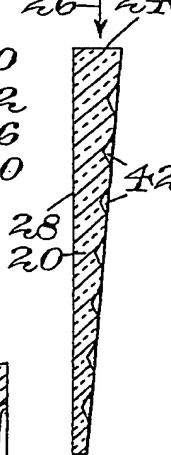


Fig. 6.

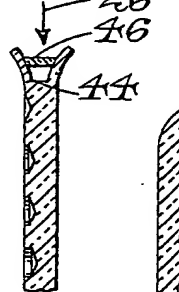


Fig. 7.

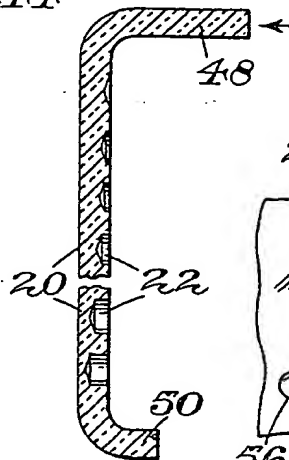


Fig. 8.

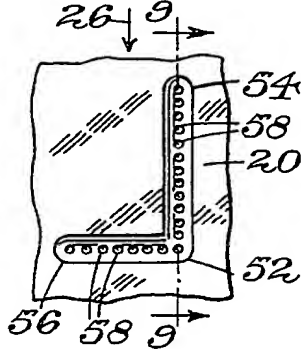
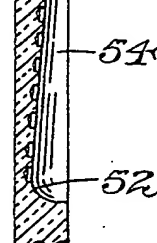
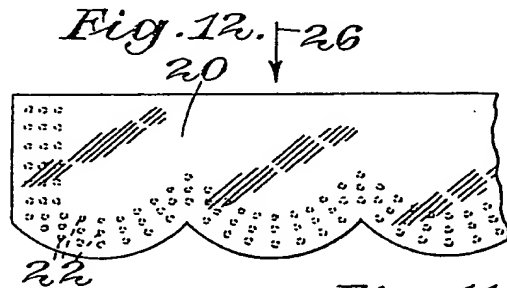
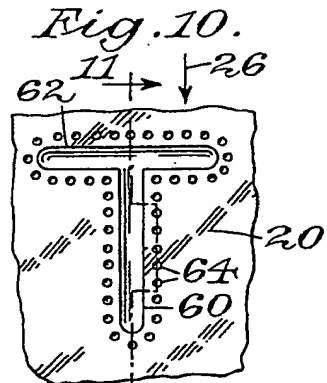
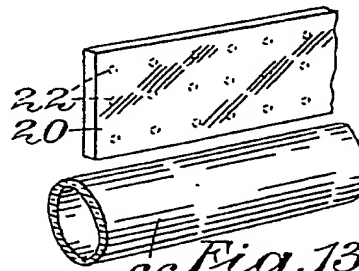
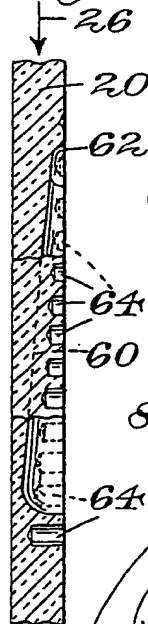


Fig. 9.

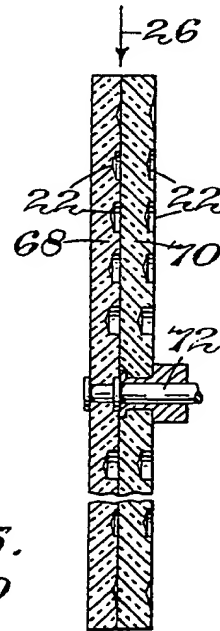




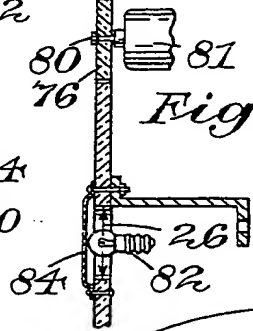
*Fig. 11.*



*Fig. 14.*



*Fig. 16.*



*Fig. 15.*

